

ABSTRACT

A DNA Polymerase has been identified in a thermophile that functions as a chromosomal replicase. The specific enzyme is a holoenzyme III that has been identified in *Thermus thermophilus*, and corresponds to Polymerase III in *E. coli*. The
5 genes and the polypeptides corresponding to *T.th.* γ , τ , ϵ , α and β subunits that they encode are disclosed, as are probes, vectors, methods of preparation and the methods of use. The enzymes of the present invention and their components are particularly well suited for use in procedures for the preparation of DNA, such as PCR, because of the speed and accuracy that they are able to achieve.